

# **OPERATION MANUAL**

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## **JENCO MODEL 6350 MICROCOMPUTER BASED pH/mV/Conductivity/ Salinity/Temperature PORTABLE METER**

**JENCO** ELECTRONICS, LTD.

MANUFACTURER OF PRECISION INSTRUMENTS

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## **INITIAL INSPECTION**

Carefully unpack the instrument and accessories. Inspect for damages made in shipment. If any damage is found, notify your Jenco representative immediately. All packing materials should be saved until satisfactory operation is confirmed.

## **GENERAL INTRODUCTION**

The Jenco Model 6350 Handheld pH, mV, Conductivity, Salinity and Temperature System, is a rugged microprocessor based instrument designed for use in field laboratories and process control applications. Using a four electrode cell for conductivity and a glass electrode for the pH probe, it becomes an essential tool for precise measurements of conductivity, pH, salinity, mV and temperature.

The model 6350 micro-processor allows the user to easily recalibrate the parameters for the probe. A few keystrokes will adjust all the parameters for compensated, uncompensated conductivity and pH and will also give the user the option to select two types of probe cell constant for a better selection of available probes and applications. The micro-processor also performs a self-diagnostic routine every time you turn on the unit providing you with basic information about the current cell constant and stability of the instrument.

The system simultaneously displays temperature in °C along with either Compensated Conductivity, Uncompensated Conductivity, Salinity, pH and mV. The user can switch back and forth from all these displays by just pushing a single key.

The model 6350 is also equipped with a non-volatile memory allowing the user to store 50 different sets of readings. This model 6350 will also assign a site number for each set of readings to let the user an easy review of the data.

This instrument is powered by six AAA-size alkaline batteries or a UL/CE approved AC adapter. The instrument also displays a "LO BAT" message when the batteries are in need of replacement.

The model 6350 comes with a RS232C interface with a proprietary driver which can easily let the user log all data simultaneously, to interface with an IBM<sup>®</sup> PC/AT compatible computer.

This instrument is also splash proof and CE approved making it a versatile tool for conductivity/salinity/pH/mV and temperature applications.

## USING THE JENCO MODEL 6350

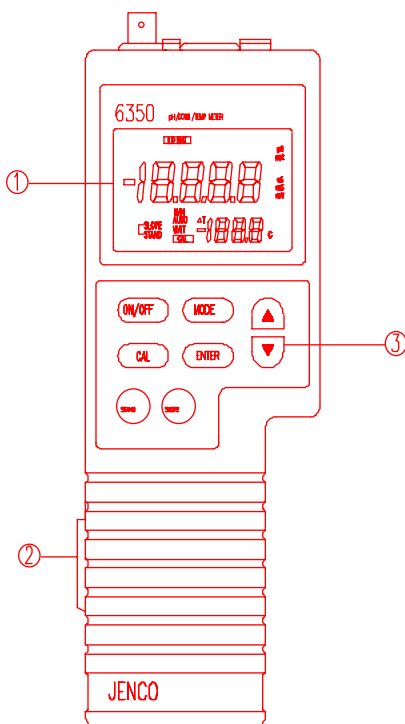


Figure 1

## PRECAUTIONS

The Model 6350 case is SPLASH PROOF in a water tight case. But the instrument should not be used under water since the instrument and the whole cable of the probes are not WATERPROOF. The SPLASH PROOF feature is to prevent permanent damage to the instrument when accidentally splashed with a non-corrosive solutions.

- (1)– LCD
- (2)–RS232 connector
- (3)–Keypad

Take the following measures immediately in the event that the instrument is dampened in any kind of solution.

1. Place all the rubber caps tightly in all the instrument's connector holes then carefully rinse the instrument with distilled water. After rinsing and drying, the connectors should be inspected and cleaned to remove all contaminants that might affect the probe connections.
2. Wait for the instrument and probe to be completely dry before resuming operation.
3. If unsatisfactory results are gained after doing the above, notify your Jenco representative for possible repair or replacement (See WARRANTY).

## THE KEYPAD

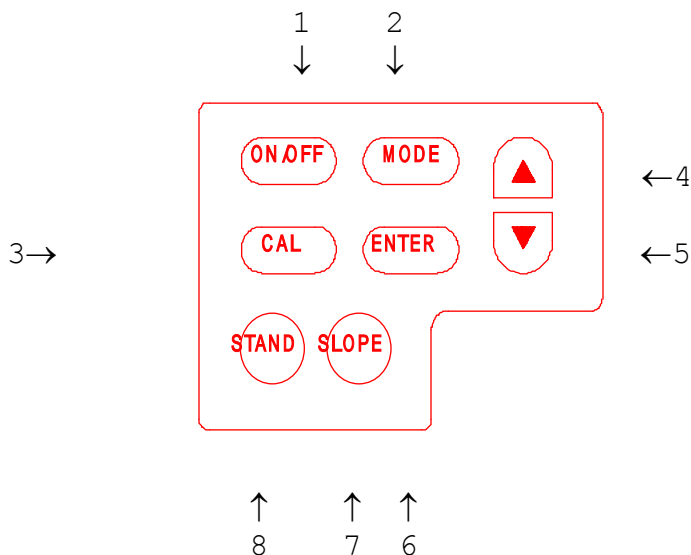


Figure 2

1. The [**ON/OFF**] key. This key will turn on or turn off the instrument. The last display mode will be saved, except during calibration, recall and erase mode where it will default to pH display.
2. The [**MODE**] key.

- 2a. In normal operation this key will change the display to pH, mV, Conductivity, compensated Conductivity, Salinity, Recall and Erase mode.
- 2b. In Calibration mode this key will exit the current calibration and go to the next calibration parameter.
3. The [CAL] key.
- 3a. During any conductivity mode this key will enable CELL CONSTANT Calibration.
- 3b. In pH mode this key will enable pH calibration. See CALIBRATION SET-UP.
4. The [ Δ ] key.
- 4a. During pH readings (**ONLY**) this key will increment the temperature in the event the unit detects no temperature input.
- 4b. During Calibration this key is used to increment the value/option of the display.
- 4c. During Conductivity and compensated Conductivity operation this key will change the display from auto ranging to manual ranging.
- 4c. In Recall mode this will move to a lower (older) site number.
5. The [ ∇ ] key.
- 5a. During pH readings (**ONLY**) this key will decrement the temperature in the event the unit detects no temperature input.
- 5b. This key is used during Calibration to decrement the value/option of the display.
- 5c. In Recall mode this will move to higher (newer) site no. Moving the site number will in no way change in which site the next data will be saved It will always save in the next open site number.
6. The [ENTER] key.
- 6a. During normal operation pressing this key for about 2 seconds will save all the readings in the next available site number.
- 6b. During RECALL mode this key will display the saved data in the current site. Pressing this key again will display the 2nd data on the current site and so on.
- 6c. During CALIBRATION or PARAMETER setting mode this key will save the current value of the displayed parameter.

7. The [**SLOPE**] key. During pH calibration this key will initiate the calibration of the pH slope only if the STAND is calibrated.
8. The [**STAND**] key. During pH calibration this key will initiate the calibration of the OFFSET of the pH electrode.

## **SPECIAL KEY COMBINATIONS**

- A. [**∇**] and [**MODE**] keys. Pressing this combination in any conductivity mode will enable Temperature reference, Temperature coefficient and Conductivity probe basic cell constant set-up. See CALIBRATION SET-UP.
- B. [**∇**] and [**ENTER**] keys. Pressing this combination during Erase mode for about 5 seconds will erase all data in the non-volatile memory. Data in all 50 sites will be erased completely. Do not use the erase function until all recorded data has been reviewed or transcribed outside the model 6350. (SEE SAVING AND RECALLING DATA.)

### **BUFFER SETTING**

The buffer setting is factory selected according to the customer's request. Please verify that the unit you are using has the correct buffer setting.

**Model 6350** has a default of 7.00, 4.01 & 10.01 while

**Model 6350C** has a default of 6.86, 4.01 & 9.18.

## THE DISPLAY

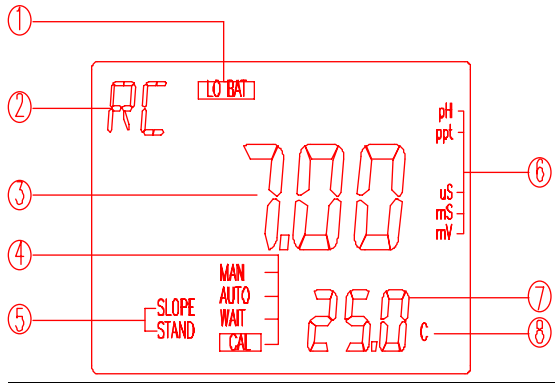
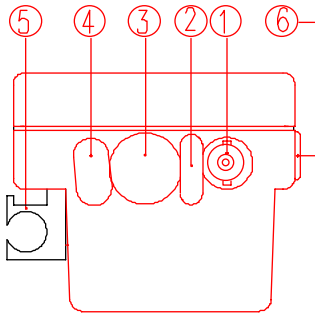


Figure 3

1. "LO BAT" -Low battery charge indicator.
2. "RC"- to indicate that the unit is in recall mode and actively displaying saved data.
3. MAIN DISPLAY
4. "MAN" - used to indicate that a temperature sensor is not attached and the pH temperature compensation is manual.  
"AUTO" - used to indicate that a temperature sensor is attached.  
"WAIT" - used when in pH calibration to indicate that the reading is not yet ready.  
"CAL" - used to indicate that unit is in calibration mode.
5. "STAND" & "SLOPE" ANNUNCIATORS - during calibration this will indicate which part of pH is being calibrated, in normal operation this will indicate (blinking) which part of pH is not yet calibrated.
6. MAIN (MODE) DISPLAY UNITS
7. SECONDARY DISPLAY
8. TEMPERATURE UNIT - While in conductivity modes this annunciator will indicate if in uncompensated (**not blinking**) or in compensated mode (**blinking**).



## CONNECTORS



1. pH electrode input
2. pH REF. input
3. COND/TEMP probe input
4. AC adaptor input
5. Probe holder
6. RS232 connector

Figure 4

## REPLACING THE BATTERIES

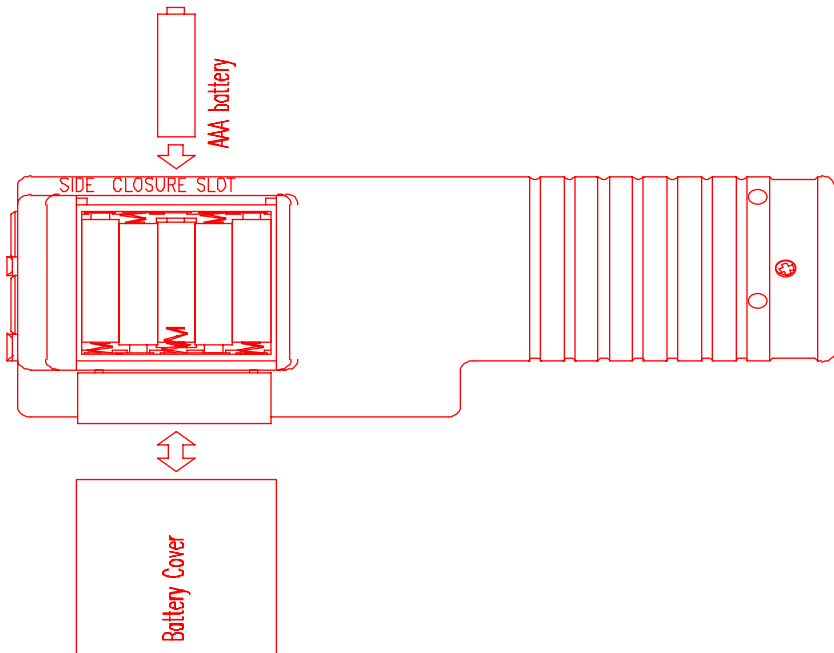


Figure 5

1. Position the meter so that the bottom part of the meter is facing up . (Refer to figure 5.) Insert a coin in the side closure slot. Tilt the coin and thrust it upward to open the battery compartment and lift the closure up.
2. Remove all of the old batteries and insert a new set of batteries ensuring the polarities are correct.

## **TURNING ON/OFF THE INSTRUMENT**

Once the batteries are installed correctly and/or an AC adapter is installed and plugged in the unit will turn ON at once. Pressing the [ON/OFF] key will turn on or turn off the instrument. When the unit is not in use the user should turn off the instrument to save battery life. By just unplugging the AC adapter will not turn off the instrument if batteries are present. It would automatically switch to battery power and will continue to operate.

After the unit is turned on the unit will display all segments for a few seconds then it will display the current cell constant. If the instrument detects a internal problem it will display an error message for a few seconds. You can learn about these error messages by consulting the **ERROR DISPLAYS** of this manual.

After the self-diagnostic is complete the temperature will be displayed in the lower right of the display and the instrument is ready to make a measurement. Just immerse the probe half-way to the liquid. If possible do not allow the probe to touch any solid object in the solution. There should be no air bubbles around the probe either. Shaking or moving the probe vigorously before recording any measurement will dislodge any bubbles formed in the probes.

<p>IF THE PROBE /INSTRUMENT IS NEW <b><u>A CELL CONSTANT CALIBRATION</u></b> MUST BE PERFORMED BEFORE USE, SINCE THE CELL CONSTANT IS SLIGHTLY DIFFERENT FOR EACH CONDUCTIVITY PROBE. REFER TO <b><u>CALIBRATION SET-UP</u></b> FOR PROCEDURES.</p>
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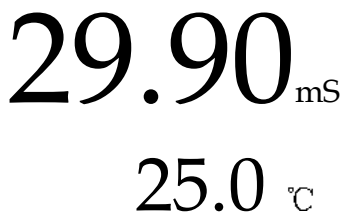
## MODEL 6350 MODES

This instrument is designed to provide 6 distinct measurements and 2 special modes:

1. Temperature - current temperature of the solution which is always displayed. If the temperature probe is not available then a user selectable temperature will be used.
2. pH - the current degree of acidity or alkalinity of the solution with automatic temperature compensation. If a temperature probe is not attached a user selectable temperature will be used.
3. mV - the millivolt input of the pH connector.
- 4 Conductivity - a measurement of the conductive material in the solution with no regard to temperature.
- 5 Compensated conductivity - also known as specific conductance which automatically adjusts to a calculated value which would have been read if the sample had been at 25 °C ( or another reference temperature which the user can choose). See CALIBRATION SETUP.
6. Salinity - a calculation based on the Conductivity and Temperature.
7. Recall ["rcl"] - this is a special mode where you can display the data you saved during normal operation.
8. Erase ["EraS"]- this is a special mode where you can delete ALL saved data.

Note : Every time the unit is turned OFF the last mode is saved so that when you turn the instrument ON again it will return to this mode. Turning OFF at Recall or Erase mode will set the mode back to pH mode.

To choose any measurement mode (temperature is always included) simply press and release the [MODE] key Carefully observe the annunciators units at the right side of the LCD.



29.90<sub>mS</sub>  
25.0 °C

For compensated conductivity mode the °C will **blink** indicating your in temperature compensated conductance. If in Conductivity mode the °C will **not blink**. If in Salinity mode the unit will be **ppt**.

12.00<sub>pH</sub>  
STAND AUTO  
SLOPE 25.0 °C

For pH readings the "STAND" annunciator will not blink if the unit is STAND calibrated, it is the same with the SLOPE annunciator.

The "AUTO" will also be displayed if a temperature sensor is available, or "MAN" if no temperature sensor is attached.

rcl  
01

This is recall mode.

← This is the site number.

EraS

This is Erase mode.

## **AUTO/MANUAL RANGING IN CONDUCTIVITY**

### **AUTO RANGING**

This model is auto ranging in conductivity measurements. This means whatever the conductivity (with in the specifications of the instrument) of the solution all you need to do is immerse the probe into the solution. The

**conductivity unit will not blink** if you are in any of the conductivity readings and if the instrument is in auto ranging display.

After immersing the probe into the solution , the instrument will be place in a search routine to find the right range for the solution, this auto ranging will take as long as 5 seconds. During this search the instrument will display "RANG" on the LCD to indicate it is searching for the right range.

## MANUAL RANGING

If you choose to disable the auto ranging feature and choose your own range, you can do this by pressing and releasing the [ $\Delta$ ] key while in any conductivity mode. You will be switching to the four ranges of the model 6350 then back to auto ranging again. During MANUAL RANGING the **conductivity unit will blink** to signify you are in MANUAL RANGING. Every time you turn off the unit it will return to auto ranging again.

Note: You may see an error message “rErr” in some manual ranges if the manual range selected is not adequate for the sample you are measuring. If this happens, simply press the [ $\Delta$ ] key again until a range is selected that suitable for your sample. Also note that the conductivity units will blink while you are in manual range. The instrument will always default in auto ranging when first turned on.

## **AUTOMATIC AND MANUAL TEMPERATURE**

### **AUTOMATIC TEMPERATURE COMPENSATION**

If the probes you are using have a built in thermistor then all temperature readings will be automatic. The "AUTO" annunciator will also displayed as long as the thermistor is available

### **MANUAL TEMPERATURE COMPENSATION**

In such a case where the probes you are using contains no thermistor or if the thermistor is not connected then the model 6350 provides a way to still get pH/mV readings by incorporating a manual setting for the temperature. As soon as the unit detects no temperature reading it will automatically use the last user temperature setting to compensate the pH readings. You can only use and change this temperature in pH mode since conductivity and salinity readings depend strictly on automatic temperature compensation. While in pH mode press the [Δ] and [▽] keys to increment and decrement the manual temperature respectively . The "MAN" annunciator will be displayed every time the unit is in manual temperature setting.

## **CALIBRATION SET-UP**

### **STAND AND SLOPE CALIBRATION (pH mode)**

To calibrate the stand and/or slope follow these steps:

1. Go to pH mode. Press the[**CAL**] key, the "**CAL**" annunciator will appear in the lower middle of the display. At this point the unit will display the current buffer set 7.00 for buffer set #1 (7.00,4.01 & 10.01) or 6.86 for buffer set #2 (6.86, 4.01 & 9.18). The "**STAND**" annunciator will start to flash indicating that the first buffer to be used is 7.00 or 6.86.

<p style="font-size: 2em; margin: 0;">7.00</p> <p style="font-size: 1.5em; margin: 0;">pH</p> <p style="margin: 0;">STAND</p> <p style="font-size: 2em; margin: 0;">CAL 25.0</p> <p style="font-size: 1.5em; margin: 0;">°C</p>
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2. Place the probe in a standard buffer solution (7.00 or 6.86 buffer depending on what set you are using). Press the [STAND] key.

**(The buffer setting is factory selected according to user's request.)**

3. The "STAND" annunciator will stop flashing and stay ON. The display will

change to the pH value of the current temperature (if a temperature probe is available the "AUTO" annunciator will turn on. If the input mV of the solution is greater or less than  $\pm 100$  mV (for buffer 7.00) or 108.3 mV/-91.7 mV (for buffer 6.86) then an error display will occur, you can clean the probe and change the solution or you can press [MODE] key to exit the calibration. If no error occurs the unit will wait for the reading to stabilize for about ten seconds (during this wait the "WAIT" annunciator will blink) then it will lock the value of the display, if during stabilization period and the reading changes by more than 0.01 pH then this wait time will reset (In this case : 1. you can change the solution. 2. just abort by pressing the [MODE] key. or 3. wait it out until the solution stabilizes). Once the display is locked changing the input or temperature will not change the display.

4. You can press [ENTER] for about 2 seconds to save this new STAND calibration or you can press [MODE] key to abort the calibration.

5. If you save the new STAND calibration you will now go to the SLOPE calibration. The "SLOPE" annunciator will start to flash indicating that the instrument is ready for the second buffer. The main display will try to show the pH of the second buffer but since at this point the solution is still the STAND solution it will randomly display the high 2nd buffer or the lower 2nd buffer solution. You can now change solutions or just press the [MODE] key to exit for a one-point pH calibration.

6. If you are doing a two-point calibration change the solution now. Press the [SLOPE] key . The "SLOPE" annunciator will stop flashing and stay ON. If the mV input is greater or less than  $\pm 30\%$  of the ideal mV input of this buffer then an error display will occur. You can change solution now or you can press the [MODE] key to abort the SLOPE Calibration. If no error occurs the unit will wait for the reading to stabilize for about ten

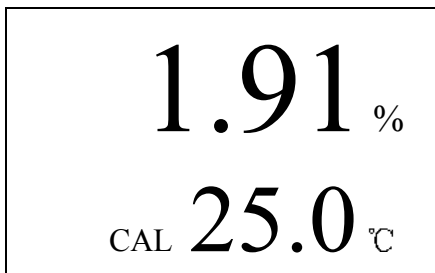
seconds (during this wait the "WAIT" annunciator will blink) then it will lock the value of the display, if during stabilization period and the reading changes more than 0.01 pH then this wait time will reset (In this case : 1. you can change the solution. 2. just abort by pressing the [MODE] key. or 3. wait it out until the solution stabilizes). Once the display is locked changing the input or temperature will not change the display.

7. You can press the [ENTER] key for about 2 seconds to save this new SLOPE calibration or the [MODE] key to abort. If you save this calibration, you just finished a two-point pH calibration and the unit will return you to normal operation.

### **TEMPERATURE COEFFICIENT (conductivity mode)**

To change the temperature coefficient follow these steps:

1. After the power-on diagnostics, go to any conductivity mode and press the [▽] and the [MODE] keys simultaneously, the CAL annunciator will appear on the lower middle of the display. The large portion will display **1.91 %** or a value set previously using this procedure.



2. Using the [Δ] and [▽] keys you can now change the coefficient to the desired value.

3. To save the new value you can press the [ENTER] key or press [MODE] to exit (and go to the next calibration parameter). If you press the [ENTER] key, the word "SAVE" will be displayed

to indicate that a new temperature coefficient is accepted and then will switch to Temperature Reference set-up.

### **TEMPERATURE REFERENCE**

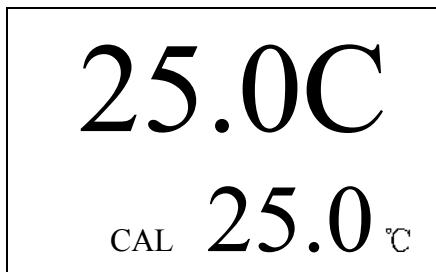
To change the temperature reference follow these steps:

1. After the power-on diagnostics, go to any conductivity mode and press the [▽] and [DOWN] keys simultaneously, the CAL annunciator will



appear on the lower left of the display. The large portion will display **1.91 %** or a value set previously using this procedure.

2. Press the [**MODE**] key. The large portion will display **25.0 C** or a value set previously using this procedure.



3. Using the [ $\Delta$ ] and [ $\nabla$ ] keys you can now change the reference to the desired value.

4. To save the new value you can press the [**ENTER**] key or press to [**MODE**] to exit (and go to the next calibration parameter). If you press [**ENTER**] the word "**SAVE**" will be displayed to

indicate that a new temperature reference is accepted and switch to Probe Basic Cell Constant set-up

### **PROBE BASIC CELL CONSTANT**

To change the probe basic cell constant follow these steps:

1. After the power-on diagnostics, go to any conductivity mode and press the [ $\nabla$ ] and [**DOWN**] keys simultaneously, the CAL annunciator will appear on the lower left of the display. The large portion will display **1.91 %** or a value set previously using this procedure.

2. Press the [**MODE**] key. The large portion of the LCD will display **25.0 C** or a value set previously using the calibration set-up.

3. Press the [**MODE**] key again. The instrument will display the actual (calibrated previously or default) cell constant while the lower part of the LCD will display the current selected cell number preceded with a capital "C".

1.01  
CAL C1.0

4. Using the [  $\Delta$  ] and [  $\nabla$  ] keys you can now change the probe cell constant to the 2 available constants (1.00 and 5.00).

3. To save the new value you can press the [ENTER] key or press the [MODE] key to exit (and return to normal operation. If you press the

[ENTER] key the word "SAVE" will be displayed to indicate that a new probe cell constant is accepted. The instrument will return to normal reading mode. This cell constant will be the basis for the cell constant calibration, which means during cell constant calibration it will only accept new probe cell constants ranging  $\pm 10\%$  from this value.

THIS PROCEDURE IS USUALLY NOT REQUIRED SINCE THIS OPTION IS SET AT THE FACTORY, BUT IF YOU WILL USE ANOTHER PROBE WHICH IS DIFFERENT FROM THE DEFAULT THEN YOU HAVE TO DO THIS PROCEDURE. EVERY TIME YOU SET A NEW CELL CONSTANT YOU MUST CALIBRATE THE PROBE. REFER TO CELL CONSTANT CALIBRATION.

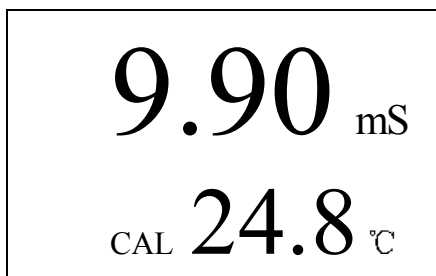
## CELL CONSTANT CALIBRATION

To calibrate the cell constant follow these steps:

1. After the power-on diagnostics, immerse the probe to a known standard conductivity solution ( Refer to PREPARING STANDARD SOLUTIONS.) which is chosen to calibrate your probe. Wait for the temperature to stabilize for a few seconds. Press the [MODE] key to go to any conductivity display.

2. Press the [CAL] key, the CAL annunciator will appear on the lower left of the display. The large portion of the LCD will display the rough conductivity value of the standard solution, depending how far the current saved cell constant to the true cell constant of the probe. The temperature unit will also **blink** indicating that you are in compensated mode. During cell constant calibration the following parameters are over-ridden :

temperature reference fixed to 25°C and temperature coefficient fixed to 1.91%.

The image shows a rectangular LCD display with a black border. The top line displays "9.90" in a large font, followed by "mS" in a smaller font. The bottom line displays "CAL" in a small font, followed by "24.8" in a large font, and "°C" in a smaller font.

3. Using the [  $\Delta$  ] and [  $\nabla$  ] keys you can now change the display to reflect the known standard conductivity solution at 25°C.

4. To save the new value you can press [ENTER] to save or the [MODE] key to. If you press [ENTER] the word "SAVE" will be displayed to

indicate that a new probe cell constant is accepted and return you to normal operation.

## **SAVING AND RECALLING DATA**

The Model 6350 is equipped with a non-volatile memory than can store up to 50 different sets of readings. Non-volatile memory will be retained even if power is lost.

### **SAVING READINGS TO MEMORY**

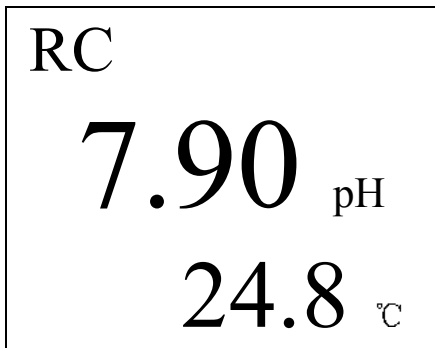
1. While in pH, mV, conductivity, salinity modes press the [ENTER] key for about 2 seconds. The unit will display "SAVE" and the site no. for a brief moment to indicate a successful save.

2. When all 50 sites are used up, the LCD will display "FULL". This message will remain on the LCD (even after power down) until a key (except for the [ON/OFF] key) is pressed.

3. Once you have acknowledged that the memory is full, any subsequent saving of data will begin overwriting the existing data starting at site #1.

## RECALLING READINGS FROM MEMORY

1. Press the [MODE] key repeatedly until Recall mode ("rc" see MODEL 6350 modes) is displayed on the screen along with the site number on lower right corner.



2. Press the [ENTER] key to display the last set of data that was saved. The model 6350 will display pH and temperature and the letters "RC" on the upper left corner to indicate you are in Recall mode. Press the [ENTER] key again to display the mV and temperature.

Press the [ENTER] key again and again to display conductivity, compensated conductivity and salinity. All of which are displayed with the temperature.

3. Press the [Δ] key to move to a lower (older) site number.

4. Press the [▽] key to move to a higher (newer) site number.

Here is an example of the model 6350 memory.

Site #1 (oldest data)

Site #2

Site #3 ← for example if you are displaying site #3, then if you press the [Δ] key the model 6350 will display site #2.

Site #4

Site #5 (newest data)

## ERASING DATA

1 To erase all the data stored in memory , press the [MODE] key repeatedly until the unit displays Erase mode ("EraS" see MODEL 6350 modes).

2. Press the [▽] and [ENTER] keys simultaneously for about 5 seconds. The LCD will display "dONE" to indicate successful erasure and return to normal operation.

**CAUTION** : All data will be erased, so be sure you have reviewed them thoroughly or transcribed to an archive before using this function.

## **RS232C INTERFACE OPERATION**

### **INTRODUCTION**

This section assumes you are familiar with the basics of data communication, the RS232C interface, a rudimentary knowledge and a copy of the following computer languages : Turbo BASIC, Quick BASIC, Turbo PASCAL and Turbo C.

This meter can only be operated using the RS232C interface by using a special software driver included with this meter. A simple program must be written in order to send your command and receive data from the meter by using any of the above mentioned computer languages.

An annotated sample program for each computer language and a more detailed explanation of the software driver are included in the accompanying disk.

### **PREPARING THE METER**

This meter comes equipped with an RS232C interface. This meter communicates with a PC computer (100% IBM PC/AT compatibles) through a DB-9 interface connector. A standard RS232C cable used for interconnecting two IBM PC/ATs can also be used for this operation.

After you have connected the cable and turned on both the meter and the computer, you are now ready for the software preparation.

## SOFTWARE

The accompanying disk includes a special driver to let you write a simple program to read data from the meter. By incorporating the driver into your software, you can then use the special commands without worrying about the protocol between the meter and your computer.

Read the file "MAN6350.TXT" in the accompanying disk to jump-start you in using the meter with its RS232C interface.

### **ERROR DISPLAYS**

<u>Display</u>	<u>Possible Cause(s)</u>
Main display : "OVER" 2ndary display : "ovr"	Temperature > 75.0°C
Main display : "OVER" 2ndary display : "udr"	Temperature < -5.0°C
Main display : "OVER" basic cell K : 1.00	Conductivity > 30.00mS
Main display : "OVER" basic cell K : 5.00	Conductivity > 200.0mS Salinity > 80.0 ppt
Main Display : "OVER" during pH calibration	Temperature > 60.0°C
Main Display : "OVER" pH mode	pH > 16.00 pH
Main Display : "OVER" mV mode	mV > 1500 mV
Main Display : "OVER"	Cell constant

during cell constant calibration	calibration is greater than $\pm 30\%$ of selected basic cell constant.
Main display : " <b>Undr</b> " during cell constant calibration	Cell constant calibration is greater than $\pm 30\%$ of selected basic cell constant.
Main Display : " <b>Undr</b> " during pH calibration	Temperature < 0.0°C
Main display : " <b>Undr</b> " pH mode	pH < -2.00
Main display : " <b>Undr</b> " mV mode	mV < -1500
Main display : " <b>rErr</b> " during manual ranging	Conductivity exceeds selected manual range.
Main display : " <b>Perr</b> " during cell constant calibration	Computed new cell constant is undefined.
Main display : " <b>Lerr</b> "	Temperature exceeds the limit, computed using the current temperature coefficient and temperature reference.
Main display : " <b>Err</b> " 2ndary display: " <b>ra_</b> "	am test has failed.
Main display : " <b>Err</b> "	ROM test has failed.

2ndary display : "ro\_"

Main display : "Err"  
2ndary display : "EEP"

Saving to non-volatile  
memory has failed.

Main Display : "FULL" Non-volatile memory is full.

## SPECIFICATIONS

### Conductivity with 1 cm<sup>-1</sup> cell constant probe

Range	Resolution	Accuracy
0.00 to 99.99 $\mu$ s/cm	0.01 $\mu$ s/cm	$\pm 0.5\%$ FS
100.0 to 999.9 $\mu$ s/cm	0.1 $\mu$ s/cm	$\pm 0.5\%$ FS
1.000 to 9.999 mS/cm	0.001 mS/cm	$\pm 0.5\%$ FS
10.00 to 30.00 mS/cm	0.01 mS/cm	$\pm 0.5\%$ FS

### Conductivity with 5 cm<sup>-1</sup> cell constant probe

Range	Resolution	Accuracy
0.0 to 499.9 $\mu$ s/cm	0.1 $\mu$ s/cm	$\pm 0.5\%$ FS
0 to 4999 $\mu$ s/cm	1 $\mu$ s/cm	$\pm 0.5\%$ FS
0.00 to 49.99 mS/cm	0.01 mS/cm	$\pm 0.5\%$ FS
0.0 to 200.0 mS/cm	0.1 mS/cm	$\pm 0.5\%$ FS

### pH

Range	Resolution	Accuracy
-2.00 to 16.00 pH	0.01 pH	$\pm 0.01$ pH $\pm 1$ LSD

### mV

Range	Resolution	Accuracy
-1500 to 1500 mV	1 mV	$\pm 0.1\%$ of reading $\pm 1$ LSD

### Salinity

Range	Resolution	Accuracy
0.0 to 80.0 ppt	0.1 ppt	$\pm 1\%$ FS



## **Temperature**

Range	Resolution	Accuracy
-5.0 to 75.0 °C	0.1 °C	±0.1 °C

## **Temperature Compensation**

Reference temperature : 15.0 to 25°C, keypad selectable at 0.1°C increment

Temperature coefficient : 0.0 to 4.0%, keypad selectable at 0.1% increment

## **Probe cell constant**

Basic probe cell constant : 1.0 & 5.0, keypad selectable

Cell constant calibration : Easy calibration by immersing the probe in known standard solution and keying-in the known conductivity.

## **PC Communication**

Connector : RS232C compatible DB9 connector, connects directly to PC (IBM PC/AT 100% compatible) serial port via a null modem connector.

Protocol : Source code libraries are provided for Turbo Basic, Quick Basic, Turbo Pascal and Turbo C. Supports Com1 to Com4 .

Baud Rate : 4800 (fixed)

## **POWER**

Power supply : 6 AAA batteries/ 9V AC adapter

Battery Life (Alkaline) : ~ 25 Hours (typical)

## **OTHERS**

Ambient temperature

operating range : 0 - 50 °C

Dimensions

Main display : 15mm high

2ndary display : 8.7mm high

Case length : 232 mm

Case height : 70.6 mm

Case Width : 82.6 mm

Weight : 450g (batteries included)

## **PREPARING STANDARD SOLUTIONS**

Suitable conductivity standards are available commercially or the user can prepare them using research grade reagents.

Here are some standard solutions the user can prepare to calibrate the probe of the model 6350.

1. Standard solution of 1413  $\mu\text{S}$  at 25°C : accurately weight out 0.746 grams of research grade dried Potassium Chloride (KCl). Dissolve in 1000ml of deionized water

1. Standard solution of 12.90 mS at 25°C : accurately weight out 7.4365 grams of research grade dried Potassium Chloride (KCl). Dissolve in 1000ml of deionized water

1. Standard solution of 111.0 mS at 25°C : accurately weight out 74.2640 grams of research grade dried Potassium Chloride (KCl). Dissolve in 1000ml of deionized water

### **STORAGE**

You can store the remaining solution in a plastic container for one week but the air space between the cap and the solution must be kept to an absolute minimum. The storage life can be increased by storing the solution below 4°C. If you have any doubt of the accuracy of the stored solution, a fresh batch should be prepared.

### **WARRANTY**

Jenco Instruments, Ltd. Warrants this product to be free from significant deviations in material and workmanship for a period of 1 year from date of purchase. If repair or adjustment is necessary and has not been the result of abuse or misuse, within the year period, please return-freight-prepaid and the correction of the defect will be made without charge. If you purchased the item from our Jenco distributors and it is under warranty, please contact them to notify us of the situation. Jenco Service Department alone will determine if the product problem is due to deviations or customer misuse.

Out-of-warranty products will be repaired on a charge basis.

### **RETURN OF ITEMS**

Authorization must be obtained from one of our representatives before returning items for any reason. When applying for authorization, please have the model and serial number handy, including data regarding the reason for return. For your protection, items must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Jenco will not be responsible for damage resulting from careless or insufficient packing. A fee will be charged on all unauthorized returns.

**NOTE:** Jenco Instruments, Inc reserves the right to make improvements in design, construction, and appearance of our products without notice.

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